

ABSTRACT

DIGITAL WAVE SHAPING CIRCUIT, FREQUENCY
MULTIPLYING CIRCUIT, AND EXTERNAL SYNCHRONIZING
METHOD, AND EXTERNAL SYNCHRONIZING CIRCUIT

The invention relates to a wave form shaping circuit, etc. which outputs signals after shaping the input signal to a duty 50% wave form regardless of whether or not input signals are of duty 50%, wherein a duty determination circuit is provided, which determines and instructs the timing position of duty 50% of clock signals to be outputted, upon receiving a timing signal prepared by a timing generation circuit 2. The duty determination circuit is composed of a cycle measurement circuit 10 for measuring a length of one cycle in the first cycle arriving at every interval integral number times one cycle T of an input clock signal EXT-CK, an operation circuit 19 for calculating the half length of one cycle on the basis of the measured value, an actual measurement circuit 20 for executing measurement of the length in each of the second cycles in above-mentioned interval, and a coincidence circuit 28 for outputting a coincidence output as a timing position of above-mentioned duty 50% when the corresponding measured value becomes coincident with above-mentioned calculated value, wherein a clock signal having a pulse width corresponding to above-mentioned duty 50% is prepared and outputted on the basis of a signal synchronized with the front edge of the input clock signal EXT-CK and the timing position determined and instructed by above-mentioned duty determination circuit 3.

This Sheet Has Been Replaced